

What Is Claimed Is:

1. A fuel injection quantity control device for a diesel engine, having injection quantity determination means for determining the required fuel injection quantity based on the accelerator opening degree and engine revolution speed, the device comprising control means for conducting a minimum cut-off control such that at the time the injection is to be restarted after fuel injection has been cut-off for the predetermined time, the fuel injection cut-off is continued when the required injection quantity determined by said injection quantity determination means is less than the prescribed minute injection quantity, and the fuel injection is restarted when the required injection quantity is equal to the prescribed minute injection quantity or larger, this restart being made with the required injection quantity attained at this time.

2. A fuel injection quantity control device for a diesel engine according to claim 1, comprising:

a first timer for measuring the continuation time of the fuel injection cut-off; and

first prohibiting and permitting means for prohibiting the minimum cut-off control by said control means when the output time of said first timer is less than the prescribed first set time and permitting the minimum cut-off control by said control means when the output time of said first timer is equal to the first set time or longer.

3. A fuel injection quantity control device for a diesel engine according to claim 2, comprising:

a second timer for measuring elapsed time since the fuel injection was restarted, when permission of the minimum cut-off control by said control means is continued; and

second prohibiting and permitting means for continuing permission of the minimum cut-off control by said control means when the output time of said second timer is less than the prescribed second set time and prohibiting the minimum cut-off control by said control means when the output time of said second timer is equal to the second set time or longer.

4. The fuel injection quantity control device for a diesel engine according to claim 1, wherein said prescribed minute injection quantity is set to a lower limit injection quantity at which no white smoke is discharged from the diesel engine when fuel injection is restarted inside the cylinders.

5. The fuel injection quantity control device for a diesel engine according to claim 2, wherein said minute injection quantity is set to a lower limit injection quantity at which no white smoke is discharged from the diesel engine when fuel injection is restarted inside the cylinders.

6. The fuel injection quantity control device for a diesel engine according to claim 3, wherein said minute injection quantity is set to a lower limit injection quantity at which no white smoke is discharged from the diesel engine when fuel injection is restarted inside the cylinders.

7. The fuel injection quantity control device for a diesel engine according to claim 2, wherein said first set time is set to a time such that due to combustion preceding the fuel injection cut-off, the temperature inside the cylinders is maintained at a temperature at which no white smoke is discharged from the diesel engine even if the fuel is injected in a quantity less than the prescribed minute injection quantity.

8. The fuel injection quantity control device for a diesel engine according to claim 3, wherein said first set time is set to a time such that due to combustion preceding the fuel injection cut-off, the temperature inside the cylinders is maintained at a temperature at which no white smoke is discharged from the diesel engine even if the fuel is injected in a quantity less than the prescribed minute injection quantity.

9. The fuel injection quantity control device for a diesel engine according to claim 4, wherein said first set time is set to a time such that due to combustion preceding the fuel injection cut-off, the temperature inside the cylinders is maintained at a temperature at which no white smoke is discharged from the diesel engine even if the fuel is injected in a quantity less than the prescribed minute injection quantity.

10. The fuel injection quantity control device for a diesel engine according to claim 3, wherein said second set time is set to a time such that the temperature inside the cylinders does not rise to a temperature at which no white smoke is discharged from the diesel engine when the fuel is injected in a quantity less than the prescribed minute injection quantity, even under the effect of combustion resulting from the restarted fuel injection.

11. The fuel injection quantity control device for a diesel engine according to claim 4, wherein said second set time is set to a time such that the temperature inside the cylinders does not rise to a temperature at which no white smoke is discharged from the diesel engine when the fuel is injected in a quantity less than the prescribed minute injection quantity, even under the effect of combustion resulting from the restarted fuel injection.

12. The fuel injection quantity control device for a diesel engine according to claim 5, wherein said second set time is set to a time such that the temperature inside the cylinders does not rise to a temperature at which no white smoke is discharged from the diesel engine when the fuel is injected in a quantity less than the prescribed minute injection quantity, even under the effect of combustion resulting from the restarted fuel injection.